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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,630	05/24/2006	Shinya Takagi	034620-144	4372
7590 07/02/2009				
Robert E Krebs THELEN REID & PRIEST Post Office Box 640640 San Jose, CA 95164-0640			EXAMINER TORRES RUZ, JOHALI ALEJANDRA	
			ART UNIT 2858	PAPER NUMBER
			MAIL DATE 07/02/2009	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/580,630

Applicant(s)

TAKAGI ET AL.

Examiner

JOHALI A. TORRES RUIZ

Art Unit

2858

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 June 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 15, 2009 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneko et al. (U.S. Patent Number 5,932,990) and further in view of Baldwin et al. (U.S. Patent Number 6,583,603).
5. Claim 1: Kaneko teaches a DC power supply apparatus (Fig.1, 4); a load device (Fig.1, 3) which is connected to an output side of the DC power supply apparatus (Fig.1); a lithium ion battery (Fig.1, 1a – 1n) for backup that is connected to the output side of said DC power supply apparatus and in parallel with said load device (Fig.1); a charging path which is connected in series to the lithium ion battery; a switch (Fig.1, 2) that is provided with such function that disconnects said lithium ion battery from said load device (Fig.1) and connects said lithium ion battery to said load device in a normal state (Col.4, Lines 38-40).

Kaneko does not explicitly teach a charging current limiting circuit, which is provided with a charging current control element that is connected in series with said lithium ion battery and supplies a charging current of an arbitrary value independent of load fluctuations in the charging path of the lithium ion battery; and a control circuit that monitors the voltage value of said charging path, sets a reference voltage setting used for setting the charging current of an arbitrary value in said charging current limiting circuit, and controls said switch when said voltage of said charging path exceeds a specified voltage value during charging.

Baldwin teaches a charging current limiting circuit, which is provided with a charging current control element, that is connected in series with a battery and supplies a charging current of an arbitrary value independent of load fluctuations in the charging

path of the lithium ion battery; and a control circuit that monitors the voltage value of said charging path, sets a reference voltage setting used for setting the charging current of an arbitrary value in said charging current limiting circuit (Col.9, Lines 3-10), and controls a switch when said voltage of said charging path exceeds a specified voltage value during charging (Col.10, Lines 41-48).

Kaneko and Baldwin are analogous to the art of charging various batteries in series.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have had the teachings of Baldwin in the device of Kaneko to have isolated the battery from load to allow proper maintenance of the batteries (Col.4, Lines 34-39) and to have prevented the battery from receiving damaging excess recharge current levels (Col.9, Lines 6-10).

6. Claim 2: Kaneko and Baldwin teach the limitations of claim 1 as discussed above. Kaneko teaches a plurality of said lithium ion batteries are connected in series (Col.4, Lines 32-36), and said power supply system is further provided with a voltage regulation circuit (13) that is connected in parallel with each lithium ion battery of said plurality of series-connected lithium ion batteries (Col.4, Lines 64-67) (Col.5, Lines 1-3), detects a full-charge voltage in each of said lithium ion batteries and bypasses said charging current (Col.4, Lines 55-63).

7. Claim 3: Kaneko teaches a DC power supply apparatus (Fig.1, 4); a load device (Fig.1, 3) which is connected to an output side of the DC power supply apparatus (Fig.1); a lithium ion battery (Fig.1, 1a – 1n) for backup that is connected to the output

side of said DC power supply apparatus and in parallel with said load device (Fig.1); a charging path which is connected in series to the lithium ion battery; a switch (Fig.1, 2) that is provided with such function that disconnects said lithium ion battery from said load device (Fig.1) and connects said lithium ion battery to said load device in a normal state (Col.4, Lines 38-40); a voltage regulation circuit (Fig.2, 13), which is provided with a bypass current limiting element (Fig.2, 24) (Col.7, Lines 29-35 and 44-57), that is connected in parallel with each lithium ion battery of said plurality of series-connected lithium ion batteries (Col.4, Lines 64-67) (Col.5, Lines 1-3), detects a full-charge voltage in each of said lithium ion batteries and bypasses said charging current (Col.4, Lines 55-63).

Kaneko does not explicitly teach a charging current limiting circuit, which is provided with a charging current control element, that is connected in series with said lithium ion battery and supplies a charging current of an arbitrary value independent of load fluctuations in the charging path of the lithium ion battery; and a control circuit that monitors the voltage value of said charging path, sets a reference voltage setting used for setting the charging current of an arbitrary value in said charging current limiting circuit, and controls said switch when said voltage of said charging path exceeds a specified voltage value during charging.

Baldwin teaches a charging current limiting circuit that is connected in series with a battery and supplies a charging current of an arbitrary value independent of load fluctuations in the charging path of the lithium ion battery; and a control circuit that monitors the voltage value of said charging path, sets a reference voltage setting used

for setting the charging current of an arbitrary value in said charging current limiting circuit (Col.9, Lines 3-10), and controls said switch when said voltage of said charging path exceeds a specified voltage value during charging (Col.10, Lines 41-48) (Col.4, Lines 42-51).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have had the teachings of Baldwin in the device of Kaneko to have isolated the battery from load to allow proper maintenance of the batteries (Col.4, Lines 34-39) and to have prevented the battery from receiving damaging excess recharge current levels (Col.9, Lines 6-10).

Response to Arguments

8. Applicant's arguments filed June 15, 2009 have been fully considered but they are not persuasive.
9. In response to applicant's argument that the specific means for the prevention of battery strings from receiving damaging excess recharge current levels is unclear and therefore the prevention is not enabled. Baldwin states the prevention is done by limiting the current to a predetermined maximum value (Col.9, Lines 6-10).
10. In response to applicant's argument that there are no charging current control element or bypass current limiting element in Kaneko or Baldwin. Baldwin teaches limiting a charging current to a predetermined maximum value (Col.9, Lines 6-10) therefore it inherently has a charging current control element. Kaneko teaches a bypass current limiting element (Fig.2, 24) (Col.7, Lines 29-35 and 44-57).

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHALI A. TORRES RUIZ whose telephone number is (571)270-1262. The examiner can normally be reached on M- F 9:30am-6pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Assouad can be reached on (571) 272-2210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. A. T./
Examiner, Art Unit 2858
/Patrick J Assouad/
Supervisory Patent Examiner, Art Unit 2862